

(GOSS NET 1)

Tape 4
Page 4

0

03:15:55, and SEP time, 03:20:55. Your SEP attitude, the gimbal angles on the PAD remain good.

00 03 01 06 CMP Roger. I have those times. The SEP time will be 03:20:55.

00 03 01 10 CC Right.

00 03 03 08 LMP Houston, Apollo 8. Over.

00 03 03 10 CC Apollo 8, Houston. Go ahead.

00 03 03 12 LMP Roger. Going to start charging battery B.

00 03 03 15 CC Okay. Battery B.

00 03 03 17 LMP And would you keep a special eye on the purge tank and cryo O₂ tank 1 DELTA-V for us since our flowmeter is pegged out, we got no warning on O₂ high flow.

00 03 03 29 CC Roger, Bill. We'll do that for you.

00 03 03 31 LMP Thank you.

END OF TAPE

0

0

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 4
Page 5

NOTE

Subsequent to TLI, there is continuous acquisition
among Goldstone (GDS), Madrid (MAD), and Honeysuckle
(HSK).

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 5
Page 1

00 03 11 08	CDR	Okay. Maneuvers started to separation attitude.
00 03 11 12	CC	Roger, Apollo 8.
00 03 11 21	CDR	Houston, Apollo 8. How do you read?
00 03 11 23	CC	Yes, reading you loud and clear, Frank. Understand you've started the maneuver to SEP attitude.
00 03 11 27	CDR	Roger.
00 03 11 28	CC	Are you reading us alright?
00 03 11 30	CDR	Loud and clear.
00 03 11 31	CC	Thank you.
00 03 14 16	CC	Apollo 8, Houston.
00 03 14 18	CDR	Go ahead, Houston. Apollo 8.
00 03 14 19	CC	Okay. Coming up on 3 hours and 15 minutes as per flight plan; we have you GO.
00 03 14 26	CDR	Roger. GO.
00 03 14 29	CDR	You got any reading on that O ₂ flow?
00 03 14 32	CC	Stand by one.
00 03 14 50	CC	Apollo 8, Houston.
00 03 14 51	CDR	Go ahead.
00 03 14 52	CC	We're reading about the same as we were before on that oxygen flow. The reason it's that high is due to the cabin gas changeover. According to Apollo 7, if your data repeats theirs, you can expect it to be high for another few hours.
00 03 15 10	CDR	Roger. Thank you.
00 03 15 43	CC	Apollo 8, Houston.
00 03 15 47	CDR	Go ahead.

(GOSS NET 1)

Tape 5
Page 2

00 03 15 48 CC You can expect that the S-IVB will be 10 degrees off in pitch at SEP attitude; however, that is GO. There is no problem involved.

00 03 15 57 CDR Roger.

00 03 20 25 CC Apollo 8, Houston.

00 03 20 27 CDR Go ahead, Houston.

00 03 20 28 CC Roger. We have you about 30 seconds prior to separation, and everything's looking good.

00 03 20 33 CDR Roger.

00 03 21 55 CDR What a view!

00 03 21 58 CC Looks pretty good, huh?

00 03 22 12 LMP We've SEP'd Houston. We got the IVB, right?

00 03 22 16 CC Roger, Apollo 8.

00 03 22 52 LMP Houston, do you read Apollo 8?

00 03 22 53 CC Go ahead, Apollo 8.

00 03 23 01 CC Apollo 8, Houston. Over.

00 03 23 16 CC Apollo 8, this is Houston. Over.

00 03 23 26 LMP This is Apollo 8 on VHF and S-band. How do you read?

00 03 23 29 CC Hear loud and clear, Bill. How me?

00 03 23 31 LMP Read you loud and clear. We have SEP and looking good.

00 03 23 34 CC Roger. Looking good here.

00 03 28 23 CDR Houston, Apollo 8. How do you read?

00 03 28 25 CC Read you loud and clear, Frank. How us?

(GOSS NET 1)

Tape 5
Page 3

00 03 28 27 CDR Roger. Loud and clear. We are taking pictures of the S-IVB; the postseparation sequence is completed, and we seem to have a high gain.

00 03 28 39 CC Okay; fine.

00 03 30 38 CC Apollo 8, Houston.

00 03 30 40 CDR Go ahead, Houston. Apollo 8.

00 03 30 41 CC Roger. Is Bill ready for his VHF test? We can configure any time he is.

00 03 30 48 CDR Okay. Stand by.

00 03 35 21 CC Apollo 8, Houston.

00 03 35 22 CDR Go ahead, Houston. Apollo 8.

00 03 35 24 CC Roger. We would like to ask whether you did a VERB 66 ENTER to transfer the state vector from CSM to LM slot. We didn't copy that down here.

00 03 35 32 CDR We did not.

00 03 35 33 CC Okay.

00 03 35 34 CDR Do you want us to do that now?

00 03 35 36 CC At your convenience.

00 03 35 38 CMP Roger.

00 03 35 44 CDR We see the earth now, almost as a disk.

00 03 35 49 CC Good show. Get a picture of it.

00 03 35 51 CDR We are.

00 03 35 54 CMP Tell Conrad he lost his record.

00 03 35 59 CMP We have a beautiful view of Florida now. We can see the Cape, just the point.

(GOSS NET 1)

Tape 5
Page 4

00 03 36 05 CC Roger.

00 03 36 06 CMP And at the same time, we can see Africa. West Africa is beautiful. I can also see Gibraltar at the same time I'm looking at Florida.

00 03 36 20 CC Sounds good. Get a picture of it. What window are you looking out?

00 03 36 29 CMP The center window.

00 03 36 30 CC Roger.

00 03 36 39 CC Are your windows clear so far?

00 03 37 08 CC Apollo 8, Houston.

00 03 37 10 CDR Go ahead, Houston.

00 03 37 11 CC How about your VHF check? We would like to get that done before you get too much further away.

00 03 37 34 CDR Okay.

00 03 37 38 CDR We are listening on VHF now for Simplex.

00 03 37 42 CC Apollo 8, Houston. Say again.

00 03 37 45 CDR We are listening for VHF alfa Simplex.

00 03 37 48 CC Okay, good. Thank you. VHF alfa Simplex, and we will get configured for it; and in between times, give us a clue as to what it looks like from way up there.

00 03 38 00 CMP Roger. Well, Mike, I can see the entire earth now out of the center window. I can see Florida, Cuba, Central America, the whole northern half of Central America, in fact, all the way down through Argentina and down through Chile.

(GOSS NET 1)

Tape 5
Page 5

00 03 38 25 CC They picked a good day for it.

00 03 38 30 CDR Stand by. We are going through the separation maneuver checklist here.

00 03 38 34 CC Roger. Standing by.

00 03 39 20 CDR Houston, this is Apollo 8. We've lost sight of the S-IVB here. The separation maneuver may be delayed slightly, or else we will go ahead and make it without having her in sight.

00 03 39 30 CC Roger. Understand, Frank.

00 03 41 58 CDR Houston, Apollo 8.

00 03 42 01 CC Apollo 8, Houston. Go ahead.

00 03 42 03 CDR When does the S-IVB do their blowdown maneuver?

00 03 42 05 CC Stand by one.

00 03 42 42 CC Apollo 8, Houston.

00 03 42 46 CDR Go on.

00 03 42 48 CC Your blowdown will be 1 hour from now, a little more than 1 hour from now.

00 03 42 51 CDR Roger. We have the S-IVB in sight again now. We have done the separation maneuver.

00 03 42 55 CC Good show. Thank you.

00 03 43 25 CC Apollo 8, Houston.

00 03 43 31 LMP Go ahead, Houston.

00 03 43 32 CC We would like to take control of the DSE for a while, Bill.

00 03 43 35 LMP Go ahead.

00 03 43 36 CC Thank you.

(GOSS NET 1)

Tape 5
Page 6

00 03 43 54 CC Apollo 8, Houston. We would like to get an approximate GET of your SEP maneuver to use for our ephemeris tracking data.

00 03 44 06 CDR Roger. It was 3 hours 40 minutes zero seconds.

00 03 44 10 CC Good, 03:40 and a foot and a half - feet per second. Right?

00 03 44 15 CDR Roger. About that --

00 03 44 16 CC Okay.

00 03 44 18 CDR -- We have the - Mike, we have the exact callout here for you and a burn status report.

00 03 44 22 CC Alright.

00 03 44 28 CDR Alright, DELTA-V_X minus 00011, DELTA V_Y plus 0002, DELTA-V_Z minus 0002, roll 0, pitch 180, yaw 0. Over.

00 03 44 46 CC Roger, Apollo 8.

00 03 46 25 CC Apollo 8, Houston.

00 03 46 29 CDR Go ahead, Houston. Apollo 8.

00 03 46 31 CC Roger. At your convenience, would you please go POO and ACCEPT? We're going to update to your W matrix. And also when you get a chance, we would like to know about the SLA panels. Did they all depart? And do you have any comments about the SLA?

00 03 46 43 CDR They all departed, and they worked fine.

00 03 46 47 CC Okay. Thank you.

00 03 46 58 SC We are in POO and ACCEPT.

(GOSS NET 1)

Tape 5
Page 7

00 03 47 00 CC Thank you.

00 03 48 26 CDR Houston, Apollo 8. Will you give us the information when you want us to stop the venting and so on?

00 03 48 32 CC Apollo 8, Houston. Roger.

00 03 50 39 CC Apollo 8, Houston.

00 03 50 42 CDR Go ahead, Houston.

00 03 50 44 CC Roger. What is the venting information are you inquiring about: the O₂ flow high out through the waste tank or waste compartment, or are you talking about your evaporator?

00 03 50 53 CDR Evaporator. We are configuring now to stop boiling.

00 03 50 56 CC Okay.

00 03 50 58 CC We concur in that.

00 03 51 02 CC Apollo 8, Houston. You can go back to BLOCK. We have gotten in the load to the W matrix update.

00 03 51 10 CDR Roger.

00 03 51 58 CDR Houston, Apollo 8. The back pressure valve is closed, and the water flow is OFF.

00 03 51 03 CC Back pressure valve closed, and water flow OFF. Thank you.

00 03 53 04 CDR Houston, Apollo 8 here.

00 03 53 05 CC Apollo 8, Houston. Go ahead.

(GOSS NET 1)

Tape 5
Page 8

00 03 53 07 CDR Roger. It looks like I might have to do a couple more small maneuvers to stay away from the front of this S-IVB, the way we are ending up now. Do you want me to do these with our P47 if we have to do them?

00 03 53 19 CC Stand by one, Frank.

00 03 53 28 CC That's affirmative, Frank, on this P47.

00 03 53 30 CDR Okay. And give me the time again when it starts to damp, please.

00 03 53 35 CC Roger. We're working on an exact GET of that, Frank.

00 03 53 48 CDR Roger.

00 03 54 54 CC Apollo 8, Houston.

00 03 54 57 CDR Go ahead.

00 03 54 58 CC I'd like to give you some idea about your trajectory. It looks like a midcourse correction number 1, projected out to TLI plus 6 hours, would be only 7 feet per second. So, of course, any further maneuvers you do would add to that, which is probably good.

00 03 55 24 CDR I just want to stay from away from in front of this thing.

00 03 55 27 CC Roger. We concur. Looks like it is chasing you, huh?

00 03 55 32 CDR Yes.

00 03 55 53 IMP OMNI D.

(GOSS NET 1)

Tape 5
Page 9

00 03 56 01 CDR Boy, it's starting to vent now, blowing down.

00 03 56 07 CC Apollo 8, Houston. Say again.

00 03 56 09 CDR The S-IVB is really venting.

00 03 56 13 CC Roger. Understand; that is supposedly a non-propulsive vent. The big blowdown maneuver, it starts maneuvering to blowdown attitude at 04:44:55, and the vent occurs at 05:07:55.

00 03 56 32 CDR 05:07:55.

00 03 56 34 CC Roger.

00 03 56 35 CDR That is the nonpropulsive vent, but it's pretty spectacular. It's spewing out from all sides like a huge water sprinkler.

00 03 56 45 CC Roger. Get some pictures of it.

00 03 56 48 CDR We are.

00 03 57 07 CDR Say again that big vent time, so I can write it down please, Houston.

00 03 57 11 CC Roger. Big vent time 05:07:55, and it will maneuvering to vent attitude beginning at 04:44:55. Bill has got the tape recorder back.

00 03 57 32 CDR Thank you. Roger.

00 03 58 31 CDR We're receiving VHF music now, Houston. Thank you.

00 03 58 35 CC Yes, you took the words right out of my mouth, Frank, and we would like to know also how far away from the S-IVB you are now.

00 03 58 48 CDR I guess we are between 500 to 1000 feet.

(GOSS NET 1)

Tape 5
Page 10

00 03 58 51 CC Roger.

00 03 58 57 CDR Herb Alpert seems pretty good.

00 03 59 00 CC Roger.

00 04 02 04 CDR Houston, Apollo 8.

00 04 02 06 CC Apollo 8, Houston.

00 04 02 10 CDR Roger. I believe we are going to have to vent
or thrust away from this thing; we seem to be
getting closer.

00 04 02 18 CC Roger. Understand, Frank; go ahead whenever -
just give us some idea of when you did it and
how much.

00 04 02 24 CDR Roger.

00 04 02 32 CC Apollo 8, Houston. Could you stand by one?
We are working on something here.

00 04 02 37 CDR Okay.

00 04 05 10 CC Apollo 8, Houston.

00 04 05 16 CC Apollo 8, this is Houston. Over.

00 04 05 39 CC Apollo 8, this is Houston. Over.

00 04 05 40 CDR You are loud and clear, Mike. Go ahead.

00 04 05 43 CC Okay, Frank. On your additional separation
maneuver, we recommend that you make a radial
burn, point your plus X-axis toward the earth,
and thrust minus X for 3 feet per second. Over.

00 04 05 57 CDR I don't want to do that; I'll lose sight of the
S-IVB.

T. J. ...
Brian?

radio
in PAO
33
215

(GOSS NET 1)

Tape 5
Page 11

00 04 06 01 CC Okay. The reason we want a radial burn is to increase your midcourse correction so we can use the SPS. Stand by on it.

00 04 06 33 CC Apollo 8, Houston.

00 04 06 35 CDR Go ahead.

00 04 06 36 CC How close to a radial burn can you get without losing site of the S-IVB, Frank?

00 04 06 41 CDR Well, I don't know because I can't see the earth now, Mike.

00 04 06 44 CC Okay.

00 04 06 51 CDR We can pitch down some. Jim has the earth in the optics so we could pitch some and get pretty close to one, I guess.

00 04 07 31 CC Apollo 8, Houston.

00 04 07 32 CDR Go ahead, Houston. Apollo 8.

00 04 07 34 CC We can give you a pitch gimbal angle on radial direction if that would be a help. It's 181 degrees; pitch gimbal angle would be exactly radial at 4 hours and 10 minutes. I don't know whether that solves your visibility problem or not.

00 04 07 46 CDR 181?

00 04 07 47 CC That's affirmative.

00 04 07 54 CDR Well, then zero would be just as good, wouldn't it?

(GOSS MET 1)

Tape 5
Page 12

00 04 08 05 CC Frank, if you use zero, then make the SEP if possible in the plus X thrusters. That's the direction of the burn we'd like.

00 04 08 13 CDR Well, can't do that. I'll thrust right square into that S-IVB.

00 04 08 16 CC Yes, okay. Understand.

00 04 08 22 CDR What will he maneuver to as far as the gimbal angle for his blowdown?

00 04 09 03 CC Apollo 8, Houston. At blowdown, that S-IVB should be oriented to perform a retrograde blowdown along the local horizontal.

00 04 09 14 CDR Okay.

00 04 09 22 CC Is it still chasing? Does it look like it is closing on you, Frank?

00 04 09 25 CDR It is about the same. The trouble is it is pointed at us pretty well.

00 04 09 30 CC Roger. Understand.

00 04 10 00 CC Frank, what we want to do is get a radial upward burn; and as long as you can through the optics or some other means out the window figure out where the earth is, then use the appropriate thrusters to thrust upward, radially upward for 3 feet per second. That is what we are looking for for trajectory reasons.

00 04 10 18 CDR Okay. Understand. I just - as I say, I just can't very well do that now. I don't want to lose sight of this S-IVB.

(GOSS NET 1)

Tape 5
Page 13

00 04 10 26 CC Roger.. We concur with that. I just thought perhaps Jim, through his optics, or you could get some feel for where the earth is. That's what we want to do, is radially upward.

00 04 10 35 CDR Okay. As soon as we find the earth, we will do it.

00 04 10 37 CC Thank you.

00 04 11 03 CDR Houston. The venting on the S-IVB is terminated.

00 04 11 08 CC Roger. Thank you.

00 04 13 53 CC Apollo 8, Houston.

00 04 13 55 CDR Go ahead, Houston. Apollo 8.

00 04 13 56 CC Roger. Frank, do you think you are going to be able to do this burn radially? We would like to add to its magnitude if you are going to make it in some other direction. Over.

00 04 14 08 CDR No, I am not even sure we are going to do it yet, Mike. If I can get - we seem to be drifting away from this thing a little bit, although it is still pointing at us quite closer than I'd like.

00 04 14 20 CC Roger. Understand.

00 04 14 25 CC Apollo 8, Houston. We would like you to do some additional maneuver; it is just a question of how much and in which direction.

00 04 14 33 CDR Okay. Right now, our gimbal angles are about - roll's about 190 and pitch is about 320 and

(GOSS NET 1)

Tape 5
Page 14

yaw is about 340. We could certainly do it in this position. That would be alright.

00 04 14 51 CC Stand by. We will check those.

00 04 17 06 CC Apollo 8, Houston.

00 04 17 09 CDR Go ahead, Houston. Apollo 8.

00 04 17 11 CC Roger, Frank. You could help us out if you would explain where you are relative to the booster. In other words, with respect to the earth and the radius back there, are you above or below or one side, or where exactly is the booster relative to you?

00 04 17 27 CDR Well, it's as I said before. We can't definitely find the earth. I think we are in front and a little bit above - a little bit above the - almost in front of the - directly in the front of the booster.

00 04 17 41 CC Roger. Understand; almost directly in front of the booster.

00 04 17 45 CDR Perhaps a little bit horizontally displaced towards the - let's see - Houston, to help you, we are looking right directly above the S-IVB with the sun - it's on the right side of the S-IVB and on our - coming in our left number 1 window.

00 04 18 34 CC Okay. Understand; the sun is on the right side of the S-IVB and coming in your number 1 window.

(GOSS NET 1)

Tape 5
Page 15

And are you - when you give us those angles, that means that your plus X-axis is pointed at it with those angles. Is that affirm?

00 04 18 47 CDR Roger.

00 04 18 48 CC Okay.

00 04 19 04 CDR The earth is in our plus Y, plus Z-direction now, Mike.

00 04 19 09 CC Thank you. Earth is plus Y, plus Z.

00 04 19 12 CDR Right, and a little minus X.

00 04 19 16 CC Okay.

00 04 20 52 CMP Houston, for information, I am looking through the scanning telescope now, and I see millions of stars; most of them - the venting from the S-IVB.

00 04 21 04 CC Right. Are you having any trouble telling which are the stars and which are the S-IVB particles?

00 04 21 09 CMP Definitely; we are in sunlight, and it looks like they are all S-IVB, but we don't know. I am going to attempt a P52 realign at this time and see what I can do.

00 04 21 18 CC Understand you.

00 04 26 37 CDR Mike, anything more on this separation maneuver you're on?

00 04 26 41 CC We are working on it, Frank. We are trying to compute what radially outward will be in close terms. Now, you still have the earth - as I

(GOSS NET 1)

Tape 5
Page 16

understand plus Y and plus Z quadrant. In other words, it's down below you on your right and slightly to your rear? Is that still true?

00 04 26 59 CDR That's right. Quite a bit to our rear and down below us. Off to the right.

00 04 27 03 CC Okay. Well, we - of course, in that attitude, you want to burn some upward and some to the left, and we are trying to be more precise than that. Frank, is it still about the same distance away? Are you opening or closing?

00 04 27 23 CDR It sure is staying close to us.

00 04 27 25 CC Understand.

00 04 28 03 CDR Mike, can you just tell us which way the S-IVB pitches and how far it will pitch to the sling shot maneuver attitude?

00 04 28 11 CC Roger. Stand by.

00 04 28 46 CC Frank, the S-IVB is within 10 degrees of its final attitude at this time.

00 04 28 52 CDR Okay. Thank you.

00 04 29 00 LMP Houston, are you ready to copy the IMU align information?

00 04 29 03 CC Go ahead.

00 04 29 05 LMP Alright. Star ID is 03, and star 36, star angle difference 0.01, torquing angle X minus 00034, Y minus 0027, Z plus 00100. Over.

00 04 29 33 CC Okay. Thank you for Y; I just got four digits here: 0027.

(GOSS NET 1)

Tape 5
Page 17

00 04 29 39 LMP Roger. Three zeros: 00027.
00 04 29 43 CC Thank you.
00 04 29 46 CMP Houston, we are going to have to hold up on the
cislunar navigation until after this next little
maneuver.
00 04 29 53 CC Roger, Jim. We understand.
00 04 31 20 CC Apollo 8, Houston.
00 04 31 22 CDR Go ahead now, Mike.
00 04 31 23 CC Can you give us an updated readout of your
gimbal angles. When your plus X-axis is pointed
toward the booster, please?
00 04 31 29 CDR Roger. Stand by.
00 04 34 08 CC Apollo 8, Houston.
00 04 34 11 CDR Go ahead, Houston.
00 04 34 12 CC Could you give us those gimbal angles, Frank,
when you have a chance?
00 04 34 14 CDR I'm getting the COAS right on it now so it will
be accurate.
00 04 34 18 CC Thank you.
00 04 34 28 CDR Okay. With the COAS right on the S-IVB, the
roll reads 105, the pitch is 275, and the yaw
is about 325.
00 04 34 47 CC Roger. Copy roll 105, pitch 275, and yaw 325.
00 04 34 53 CDR Roger. That should be 115 for the roll.
00 04 35 46 CC Thank you. 115 roll.
00 04 35 52 LMP Houston, Apollo 8. Over.

(GOSS NET 1)

Tape 5
Page 18

00 04 35 58 CC Apollo 8, Houston. Go ahead.

00 04 36 00 LMP Roger. If it will help you any, Mike, the earth is plus Y about 45 degrees in a minus X. I can see it out my side window, and it's a beautiful view with numerous cloud vortex.

00 04 36 15 CC Roger, Bill. Thank you. Understand; plus X 45 degrees halfway between plus Y and plus Z and slightly minus X.

00 04 36 26 LMP Negative. It's 45 degrees in the plus Y, in the XY plane towards minus X. Over.

00 04 36 37 CC Roger. Understand in the XY plane, toward X 45 degrees.

00 04 36 43 LMP Forty-five degrees from plus Y to minus X.

00 04 36 48 CC Roger. Thank you.

00 04 36 51 LMP It's behind us to the right, if that will help.

00 04 36 54 CC Roger.

00 04 37 15 CDR I can still see the Cape and isthmus of Central America.

00 04 37 22 CC Roger. Understand. Frank, what we want on this burn is 8 feet per second now, 8 feet per second. We want it radially upward, and we want you to use whatever thrusters are required to burn radially upward at 8 feet per second.

00 04 37 37 CDR Why do you want to use - do so much, Mike?

00 04 37 42 CC Because of the separation distance we would like to achieve between now and the time of S-IVB blowdown.

(GOSS NET 1)

Tape 5
Page 19

00 04 37 53 CDR Okay.

00 04 38 56 CDR Mike, do you want me to go ahead and try to do this, or are you going to give me some gimbal angles?

00 04 39 05 CC Apollo 8, Houston. Go ahead and do it without gimbal angles, if you can do that. Over.

00 04 39 11 CDR Okay. I don't understand why you want so many feet per second on it, but I think I can - with just a little maneuvering, I can get away from it a lot simpler than that.

00 04 39 22 CC Well, we would like the radial upward for trajectory reasons, and the magnitude we'd like because of the separation distance which we're predicting you will have at S-IVB blowdown.

00 04 39 31 CDR Okay.

00 04 39 54 CDR VHF sounds good.

00 04 39 57 CC Roger. On the VHF.

00 04 41 25 CMP OMNI B.

00 04 41 27 CC Understand; OMNI B Baker.

00 04 41 59 CC Apollo 8, Houston.

00 04 42 01 LMP Go ahead, Houston. Apollo 8.

00 04 42 03 CC Roger. About 12 minutes before your big blowdown, there is a small continuous vent which opens at a GET of 04:55:55. You may notice that on the booster, 12- or 15-pound thrust.

(GOSS NET 1)

Tape 5
Page 20

00 04 42 19 LMP Okay.

00 04 42 25 CC And, Apollo 8, could you give us your burn information whenever you have it?

00 04 42 30 LMP Roger. We are maneuvering to the attitude now.

00 04 42 33 CC Okay.

00 04 43 18 CDR Okay, Houston. I understand you want 8 feet per second burn, is that right?

00 04 43 21 CC Right. Eight feet per second, radially upward.

00 04 43 33 CDR Well, we are as close to being radially upward as we can determine.

00 04 43 36 CC Roger.

END OF TAPE

APOLLO 8 AIR-TO-GROUND VOICE TRANSCRIPTION

(GOSS NET 1)

Tape 6
Page 1

0 --- --- CC Apollo 8, Houston. Are you going to use P47 to monitor the burn?

--- --- CMP Yes, Jim, that's Roger. We are putting it in right now.

--- --- CC Thank you.

00 04 45 05 CDR Maneuvering now.

00 04 45 06 CC Thank you.

00 04 45 54 CDR Houston, we made the burn at 7.7 plus X plus 00001 Y, and Z's are all zeros. Gimbal angles, roll 180, pitch 310, and yaw 020.

00 04 46 19 CC Roger. I copy plus X 7.7, Y 0.1; and roll, pitch, and yaw 180, 310, and 20.

00 04 46 30 CDR Did you get that information, Houston?

00 04 46 33 CC Apollo 8, Houston. How are you reading?

00 04 46 36 CDR Read you loud and clear. Did you get the information?

00 04 46 38 CC That's affirmative. I say again, we copied plus X 7.7, one-tenth in Y, no Z; roll, pitch, and yaw, 180, 310, and 020.

00 04 46 52 CDR Roger. The burn was made at - initiated at 04:45.

00 04 47 06 CC Roger. Copy 04:45 --

00 04 47 30 CDR Okay. Do you want us to transfer that to the CS - to the LM state vector or just leave it alone? You --

00 04 47 39 CC Affirmative, Frank. We would like you to transfer from the CSM to the LM state vector.

(GOSS NET 1)

Tape 6
Page 2

00 04 47 43 CDR Roger.

00 04 50 33 CC Apollo 8, Houston.

00 04 50 35 CDR Go ahead, Houston. Apollo 8.

00 04 50 37 CC How is that booster looking now? Is it drifting away rapidly, or how does it look?

00 04 50 41 CDR Bill is the only one that can see it. Just a minute.

00 04 50 45 LMP We're 90 degrees from its X-axis, and we must be out 1000 feet and moving out.

00 04 50 53 CC Roger. Understand; 90 degrees from its X-axis and about 1000 feet and separating.

00 04 50 59 LMP Plus or minus a couple of thousand.

00 04 51 03 CC Understand.

00 04 51 58 CDR Houston, this is Apollo 8. I think we've got clearance now; we got a little behind on our P23's, but I suggest we go ahead and start those now.

00 04 52 06 CC Roger. Stand by.

00 04 52 38 CDR We're well clear of the S-IVB now, Houston.

00 04 52 40 CC Roger, Bill. Thank you, and at your convenience, could you give us the PRD reading? And as far as the P23 goes, that's just fine to get started with it. It looks like your first star, which is number 14, should be good until about 05:15 GET. Over.

00 04 53 02 LMP Roger. We'll start P23.

(GOSS NET 1)

Tape 6
Page 3

00 04 54 18 LMP Houston, Apollo 8 with a PRD reading.

00 04 54 21 CC Go ahead.

00 04 54 23 LMP Roger. At 4 hours 4 minutes, Commander is 0, CMP 0.64, LMP 0.02.

00 04 54 34 CC Got that. Copy left to right: 0, 0.64, and 0.02 at 4 hours and 4 minutes. Thank you.

00 04 54 43 LMP Roger. At 04:53, it was 0.01, 0.64, 0.03, and negligible on the survey meter.

00 04 54 53 CC Roger. Thank you.

00 04 55 12 CDR I have a beautiful view of the S-IVB and the earth here on one. I'll try and get a picture for you.

00 04 55 18 CC Hope so.

00 04 55 27 CC Apollo 8, Houston. We've got you about a minute away from the continuous vent open and 14 minutes away from the big dump, and we would like an estimate on your distance now if you can give it.

00 04 55 46 CDR Stand by. Our distance is about 3000 feet we would estimate.

00 04 55 50 CC Thank you.

00 04 56 38 CDR And we can see the vent.

00 04 56 44 CC Apollo 8, Houston. Say again.

00 04 56 47 CDR We can see the vent.

00 04 56 49 CC Roger. Thank you.

00 04 58 31 CMP Houston, Apollo 8.

00 04 58 33 CC Go ahead, Jim.